

UNCLASSIFIED

AD NUMBER

AD869938

NEW LIMITATION CHANGE

TO

Approved for public release, distribution
unlimited

FROM

Distribution authorized to U.S. Gov't.
agencies and their contractors;
Administrative/Operational Use; MAY 1970.
Other requests shall be referred to
Department of Army, Fort Detrick, Attn:
Technical Release Branch/TID, Frederick,
MD 21701.

AUTHORITY

BDRL, D/A ltr, 29 Sep 1971

THIS PAGE IS UNCLASSIFIED

AD

20

AD No. — AD 869938

DDC FILE COPY

TECHNICAL MANUSCRIPT 609

GASTRODISCOIDES HOMINIS
IN A RHESUS MONKEY
WITH RELATED INTUSSUSCEPTION
OF THE COLON

James G. Fox

William C. Hall

STATEMENT #2 UNCLASSIFIED

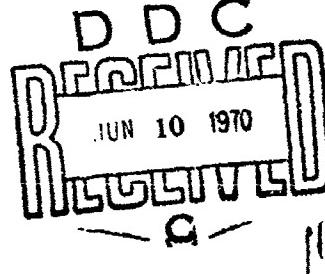
This document is subject to special export controls and each transmittal to foreign governments or foreign nationals may be made only with prior approval of Dept. of Army, Fort Detrick, ATTN: Technical Release Branch/TID, Frederick, Maryland 21701

MAY 1970

DEPARTMENT OF THE ARMY

Fort Detrick
Frederick, Maryland

49829



ACCESSION NO.	
OPTI	WHITE SECTION <input type="checkbox"/>
DDC	BUFF SECTION <input checked="" type="checkbox"/>
REMARKS/UNCLASSIFIED	<input type="checkbox"/>
ST	
DISTRIBUTION/AVAILABILITY CODES	
REF ID:	AVAIL AND DISTR
2	

Reproduction of this publication in whole or in part is prohibited except with permission of the Commanding Officer, Fort Detrick, ATTN: Technical Releases Branch, Technical Information Division, Fort Detrick, Frederick, Maryland, 21701. However, DDC is authorized to reproduce the publication for United States Government purposes.

DDC AVAILABILITY NOTICES

Qualified requesters may obtain copies of this publication from DDC.

Foreign announcement and dissemination of this publication by DDC is not authorized.

Release or announcement to the public is not authorized.

DISPOSITION INSTRUCTIONS

Destroy this publication when it is no longer needed. Do not return it to the originator.

The findings in this publication are not to be construed as an official Department of the Army position, unless so designated by other authorized documents.

DEPARTMENT OF THE ARMY
Fort Detrick
Frederick, Maryland 21701

TECHNICAL MANUSCRIPT 609

GASTRODISCOIDES HOMINIS IN A RHESUS MONKEY
WITH RELATED INTUSSUSCEPTION OF THE COLON

James G. Fox

William C. Hall

Animal Farm Division
AEROBIOLOGY & EVALUATION LABORATORIES
and
Pathology Division
MEDICAL SCIENCES LABORATORIES

Project none

May 1970

In conducting the research described in this report, the investigators adhered to the "Guide for Laboratory Animal Facilities and Care," as promulgated by the Committee on the Guide for Laboratory Animal Facilities and Care of the Institute of Laboratory Animal Resources, National Academy of Sciences-National Research Council.

ACKNOWLEDGMENT

We are indebted to Mrs. Mabel Chitwood, Parasite Classification and Distribution Investigation Laboratory, USDA, Beltsville, Maryland, for her assistance in the identification of the parasite Gastrotiscoides hominis.

ABSTRACT

This case report describes a monkey with protracted diarrhea, emaciation, and marked dehydration. Necropsy of the animal revealed an intussusception of the colon, multifocal necrosis of the intestinal mucosa, and a large number of Gastrotiscoides hominis in the ileum, cecum, and colon.

GASTRODISCOIDES HOMINIS IN A RHESUS MONKEY WITH RELATED INTUSSUSCEPTION OF THE COLON*

The fluke Gastroducoides hominis has been recovered from the intestinal tract of man, swine, and rat, as well as the mouse deer and the subhuman primate.¹⁻³ Recent parasite surveys of monkeys examined at necropsy tabulated a 21.4% incidence of G. hominis in 1,201 cynomolgus (Macaca fascicularis).⁴ No ova were recovered in another group of 303 cynomolgus, nor in 646 rhesus (M. mulatta), by fecal flotation or necropsy.⁵

The parasite commonly infests the lower colon in large numbers, and its presence in the colon may cause a chronic mucous diarrhea or no detectable clinical abnormalities.⁶ A description of the lesions produced in monkeys by G. hominis infestation has not been reported. This report describes a rhesus monkey with severe diarrhea for 2 days, followed by 2 days of rectal tenesmus, marked dehydration, and eventual death. Necropsy of the animal revealed multifocal necrosis of the intestinal mucosa, extensive intussusception of the colon, and a large number of G. hominis in the ileum, cecum, and colon.

A 2-year-old M. mulatta weighing 2.4 kg arrived at the primate colony on March 12, 1969, and 4 days later was listless and anorectic and had diarrhea. It was isolated and treated with electrolyte dextrose solution** and furazolidone kaolin-pectate mixture by stomach tube.*** Electrolyte dextrose solution was placed in the cage for free choice consumption. The diarrhea continued for another day, and on the 3rd and 4th day the feces were scant, mucoid, and blood-tinged. Tenesmus was observed and rectal prolapse was replaced manually on two occasions during this 4-day period. Fecal cultures were made, but no pathogenic bacteria were isolated. A direct fecal smear was negative for parasitic ova. The animal's condition deteriorated, and 5 days after treatment was instituted the animal died.

The ileocecal valve was telescoped into the colon in an intussusception that involved all but the terminal 4 inches of colon. The involved portion of intestine was enlarged and the intestinal wall affected, varied in color from a blanched mottling of the serosa to a diffuse gradation of dark red and black tissue. Reddish flukes, approximately 5 by 3 mm, numbering in excess of 200, were attached to the mucosa of the distal ileum, cecum, and colon (Fig. 1). Mechanical removal of the flukes exposed small red areas 1 to 2 mm in diameter on the intestinal mucosa.

* This report should not be used as a literature citation in material to be published in the open literature. Readers interested in referencing the information contained herein should contact the senior author to ascertain when and where it may appear in citable form.

** Vetrad O, Don Hall Labs, Portland, Oregon.

*** Furoxone, brand of furazolidone, Eaton Labs, Division of The Norwich Pharmacal Company, Norwich, New York.



FIGURE 1. *G. hominis* Attached to the Mucosal Lining of the Colon.

Most flukes detached after formalin fixation and were found free in the intestinal lumen. Ova were not found in any sections of parasites. An occasional fluke remained attached to the mucosa (Fig. 2). The lesions attributed directly to the parasite were focal. Semi-circular convex depressions in the mucosa were occasionally seen and were probably due to attachment of the fluke by the posterior sucker (Fig. 3). The mucosa of the affected areas showed various degrees of hyperemia, loss of surface epithelium, and necrosis. Neutrophils replaced the outer half of some of these foci and extended deeply into the crypts. Necrosis was limited to the mucosa. The submucosa was focally thickened by fibrous tissue and infiltrated with lymphocytes and plasma cells.



FIGURE 2. Attachment of the Posterior Sucker of *G. hominis* to the Nucosa of the Colon. Note the loss of surface epithelium.



FIGURE 3. Attachment Site of *G. hominis* to the Colon. There are mild necrosis and hyperemia of the mucosa and chronic inflammation of the submucosa.

The intussusception was characterized by necrosis of the intestinal mucosa and submucosa and severe vascular congestion of all parts. Mesenteric lymph nodes were necrotic, congested, and edematous.

Other lesions included a giant cell pneumonia, chronic bronchiolitis secondary to pulmonary acariasis, giant cell sialadenitis, sarcosporidiosis, and a moderate nephrosis.

Gastroducooides hominis can be diagnosed clinically by demonstrating the characteristic operculated ova, 150 by 72 μ , in the feces. In this case the flukes were immature and no ova could be found on fecal examination. A similar case in a rhesus monkey was reported by Graham in 1960.¹ Gastroducooides hominis is a member of the family Paramphistomidae and identification is made by its size, scoop-shaped appearance, ventroterminal suckers, and site of infection, usually the colon and cecum² (Fig. 4).

Infected laboratory primates are not considered a public health hazard because of the need for an intermediate snail host. Most animals infected with this parasite show only a chronic diarrhea or no apparent ill effects. Honjo et al.³ noted in cynomolgus (M. fascicularis) that no special abnormality was detected in the general health of severely infested monkeys. The monkey described in the present case suffered from severe diarrhea, complicated secondarily by a fatal, necrotic intussusception. Although the individual fluke produced only a focal lesion, the massive infestation of flukes produced a marked disruption of the intestinal mucosa. It has been reported that enteritis, hypermotility, and focal or nodular lesions produced by intestinal parasites can initiate an intussusception.⁴ In this case the flukes found in the intussuscepted area of the colon caused confluent multiple foci of chronic irritation that contributed to the telescoping effect of the involved colon.

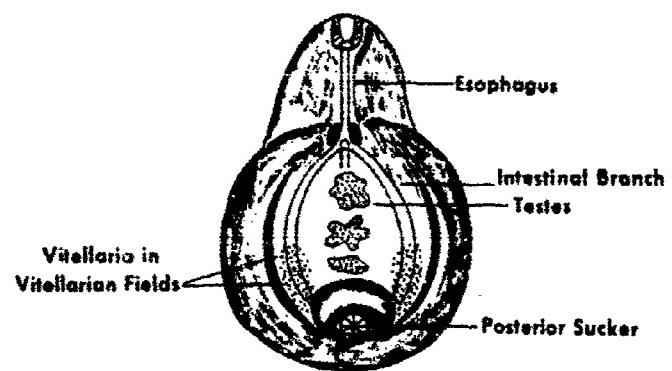


FIGURE 4. *Gastrodiscoides hominis*. Family, Paramphistomidae; large, thick worms, often red when alive.

LITERATURE CITED

1. Graham, G.L. 1960. Parasitism in monkeys. Ann. N.Y. Acad. Sci. 85:842-860.
2. Herman, L.H. 1967. Gastroducooides hominis infestation in two monkeys. Vet. Med. 62:355-356.
3. Whitney, R.A.; Johnson, D.J.; Cole, W.C. 1967. The subhuman primate: A guide for the veterinarian, (EASP 100-26). Edgewood Arsenal, Maryland.
4. Hashimoto, I. 1966. Survey of helminth parasites in cynomolgus monkeys (Macaca irus). Jap. J. Med. Sci. Biol. 19:218.
5. Reardon, Lucy V.; Rininger, Bonny F. 1968. A survey of parasites in laboratory primates. Lab. Animal Care 18:577-580.
6. Faust, E.C.; Beaver, P.C.; Jung, R.C. 1962. Animal agents and vectors of human disease, p. 139. 2nd ed. Lea & Febiger, Philadelphia, Pa.
7. Cosgrove, G.E. 1966. The trematodes of laboratory primates. Lab. Animal Care 16:25-39.
8. Honjo, S.; Muto, K.; Fujiwara, T.; Suzuki, Y.; Imaizumi, K. 1963. Statistical survey of internal parasites in cynomolgus monkeys (Macaca irus). Jap. J. Med. Sci. Biol. 16:217-224.
9. Jubb, K.V.F.; Kennedy, P.L. 1962. Pathology of domestic animals. Vol. 2. Academic Press, N.Y.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
Department of the Army Fort Detrick, Frederick, Maryland, 21701		Unclassified	
3. REPORT TITLE		3b. GROUP	
GASTRODISCOIDES HOMINIS IN A RHESUS MONKEY WITH RELATED INTUSSUSCEPTION OF THE COLON			
4. DESCRIPTIVE NOTES (Type of report and its characteristic)			
5. AUTHOR(S) (First name, middle initial, last name)			
James G. Fox William C. Hall			
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REPS	
May 1970	11	9	
8. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S)	
a. PROJECT NO. None		Technical Manuscript 609	
c. None		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d. None		CMs 6680, AMXFD-AE-T 49829	
10. DISTRIBUTION STATEMENT Qualified requesters may obtain copies of this publication from DDC. Foreign announcement and dissemination of this publication by DDC is not authorized. Release or announcement to the public is not authorized.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
Animal Farm and Pathology Divisions		Department of the Army Fort Detrick, Frederick, Md., 21701	
13. ABSTRACT This case report describes a monkey with protracted diarrhea, emaciation, and marked dehydration. Necropsy of the animal revealed an intussusception of the colon, multifocal necrosis of the intestinal mucosa, and a large number of <u>Gastrodiscoides hominis</u> in the ileum, cecum, and colon.			
14. Key Words			
<u>Gastrodiscoides hominis</u> Rhesus monkey Intussusception Colon Parasites			